



Certificate / Certificat Zertifikat / 合格証

ASH 1602007 C001

exida hereby confirms that the:

B, D & T - Series Pressure Switches

**Ashcroft Inc.
Stratford, CT - USA**

Have been assessed per the relevant requirements of:

IEC 61508 : 2010 Parts 1-2

and meets requirements providing a level of integrity to:

Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type A, Route 2_H Device

**PFH/PFD_{avg} and Architecture Constraints
must be verified for each application**

Safety Function:

The B, D & T - Series Switches will de-energize the associated circuit when the trip pressure is reached. The de-energized switch position is with the NC switch contact open on a high pressure trip, or the NO switch contact open on a low pressure trip.

Application Restrictions:

The unit must be properly designed into a Safety Instrumented Function per the Safety Manual requirements.

The manufacturer may use the mark:



Revision 3.0 June 2, 2023
Surveillance Audit Due
July 1, 2026



Evaluating Assessor

Certifying Assessor

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Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type A, Route 2_H Device

PFH/PFD_{avg} and Architecture Constraints must be verified for each application

Systematic Capability :

These products have met manufacturer design process requirements of Safety Integrity Level (SIL) 3. These are intended to achieve sufficient integrity against systematic errors of design by the manufacturer.

A Safety Instrumented Function (SIF) designed with this product must not be used at a SIL level higher than stated.

Random Capability:

The SIL limit imposed by the Architectural Constraints must be met for each element. This device meets *exida* criteria for Route 2_H.

IEC 61508 Failure Rates, Single Switch, in FIT*

Description	Trip	λ_{SD}	λ_{Su}	λ_{DD}	λ_{DU}
Vacuum & Compound	High	0	45	0	152
	Low	0	50	0	150
Pressure, Metal Diaphragm	High	0	45	0	111
	Low	0	46	0	113
Pressure, Elastomeric Diaphragm	High	0	45	0	127
	Low	0	58	0	117
Pressure, Piston O-Ring	High	0	45	0	185
	Low	0	89	0	144
Differential Pressure	High	0	84	0	160
	Low	0	52	0	197
Temperature	High	0	45	0	136
	Low	0	68	0	116

* FIT = 1 failure / 10⁹ hours

SIL Verification:

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFH/PFD_{avg} considering redundant architectures, proof test interval, proof test effectiveness, any automatic diagnostics, average repair time and the specific failure rates of all products included in the SIF. Each element must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.

The following documents are a mandatory part of certification:

Assessment Report: ASH 16/02-007 R002 V3 R1 (or later)

Safety Manual: I&M900-10253

B, D & T - Series Pressure Switches



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